REPORT

UNITED STATES ARMY INFANTRY SCHOOL

FORT BENNING, GEORGIA 31905

12 - 14 OCTOBER 1970

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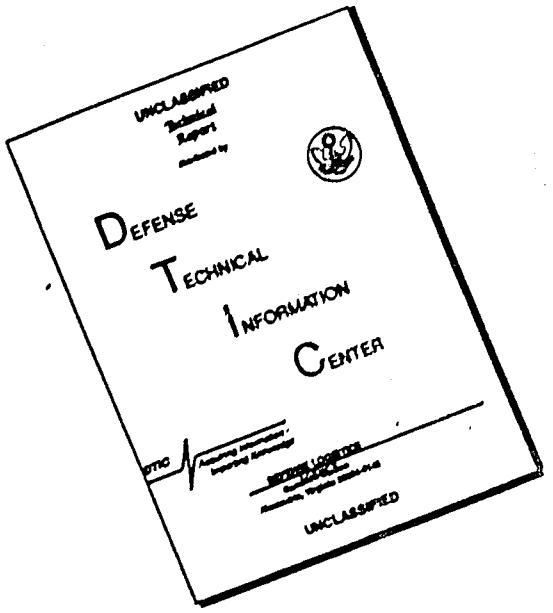

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ALEXANDER NICOLINI
Major, Infantry
R&D Coordinator

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PHYSICAL FITNESS SYMPOSIUM

12-14 OCTOBER 1970

FOREWORD

GENERAL:

The Leadership Department and the Office of Doctrine, Development, Literature and Plans (ODDLP), United States Army Infantry School co-hosted a Physical Fitness Symposium during the period 12-14 October 1970. Numerous civilian and military physical fitness and training authorities were assembled to discuss the various aspects of general physical fitness and to analyze the Army's fitness programs. The symposium was conducted at the United States Army Infantry School which is the proponent agency responsible for development of the Army physical fitness program.

OBJECTIVES:

The objectives of the symposium were:

1. To discuss new developments in physical fitness programs.
2. To continue liaison between military and civilian experts in the field of physical education.
3. To surface and discuss innovations recently researched and developed at the Infantry School which are being considered for Army-wide implementation.
4. To provide an opportunity for an objective evaluation of the Army's physical fitness programs by civilian and military experts.
5. To learn about the latest civilian research and development in the field of physical education.
6. To determine the relationship between physical fitness and military job performance.
7. To evaluate the Army's physical fitness test programs.

AUTHORITY:

The Commanding General, Headquarters, United States Continental Army Command, Fort Monroe, Virginia, approved the United States Army Infantry School's request to hold the symposium by letter, dated 22 April 1970, as amended by CONARC Message DTG 091725Z June 70, Subject: Physical Fitness Symposium.

REPRESENTATION:

Attendees represented both military and civilian organizations. Representatives attended from Headquarters, Department of the Army; Headquarters, United States Continental Army Command; Headquarters, First United States

Army; Headquarters, Third United States Army; Headquarters, Fourth United States Army; Headquarters, Sixth United States Army; United States Army Institute of Military Assistance; Interservice Military Sports Secretariat, Department of Defense; United States Army Infantry Center; United States Army Training Center-Infantry, Fort Lewis, Washington; United States Army Training Center-Infantry, Fort Campbell, Kentucky; United States Army Training Center-Infantry, Fort Jackson, South Carolina; United States Army Training Canter-Infantry, Fort Ord, California; United States Army Training Center-Engineer, Fort Leonard Wood, Missouri; United States Army Training Center-Artillery, Fort Sill, Oklahoma, United States Army Training Center-Medical, Fort Sam Houston, Texas; University of Texas; Kent State University; Auburn University; Ohio State University; Columbus College; Indiana University; University of North Carolina; United States Military Academy; United States Air Force Academy; United States Army Infantry School; United States Army Women's Corps School; United States Army Medical Field Service School; United States Army Artillery School; Marine Corps Physical Fitness Academy; Sports Medical Clinic, Atlanta, Georgia; President's Council on Physical Fitness and Sports; Department of Health, Education and Welfare; American Institute of Research; Naval Medical Research Laboratory; Human Resources and Research Organization; British Army; French Army; Canadian Armed Forces to include Canadian Forces Headquarters and Canadian Forces Institute of Environmental Studies; and Australian Army Staff.

DISSEMINATION:
This report is disseminated for information and guidance of all concerned.

FOR THE COMMANDANT:

HERBERT F. FRANDSEN
Colonel, Infantry
Secretary

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CHAPTER 1

Summary

1. The Physicel Fitness Symposium wes conducted during the period 12-14 October 1970 at the United States Army Infentry School, Fort Benning, Georgia.

2. The Symposium, co-hosted by the Leadership Department and the Office of Doctrine, Development, Literature and Plans, United States Army Infantry School, was convened to provide an interchenge of ideas between military and civilian euthorities in the field of phyeical educetion, to review new developments relative to physical fitness, end to discues areee of common interest. The results of the Symposium will be used as a guide in establishing Army-wide doctrine for physicel fitness in the future.

3. The Symposium was attended by leading military and civilian physiologists, medical specielists, physical fitness educetors end military training specialists. Attendees represented numerous CONARC installetions, leading colleges and universities, research organizations, Depertment of the Army, other U. S. militery services, end allied military forces.

4. The major topics of presentation and discussion were:

a. The application of aerobics in an exercise program.

b. Effects of exercise and stress upon the body.

c. Evaluation of physical fitness.

d. Motivation in training and testing.

e. Running program "RUN FOR YOUR LIFE."

f. Contribution of sports to physical fitness.

g. Preparation of physicel fitness leaders.

h. Physical fitness of personnel over 40 yeers of age.

i. Physical fitness testing in the Army.

5. As part of the complete review of the Army's Physical Fitness Program, currently in progress at the Infantry School, leading authorities in the field of medicine, physiology and physical education were assembled in a classroom environment to present topics of their specialties as related to physical fitness. Each presentation was followed by a discussion period to provide opportunity for exchange of ideas and comment on the presentations. General discussion sessions were also held each day. In addition, the attendees received an orientation concerning Infantry School/Center activities and a demonstration of airborne and ranger training and techniques. In general, the Symposium focused attention on the necessity for continued and increased emphasis in the planning, conduct, and supervision of physical conditioning at all levels of command and throughout the civilian educational system. An official dinner was hosted by the Infantry School on the first night of activities. The Symposium closed at 1200 hours, 14 October 1970, with a unanimous decision to support the resolutions of the attendees and to reconvene periodically. Continuous coordination between civilian and military educators was also re-emphasized and deemed appropriate.

6. The Symposium terminated with adoption by general consensus of the following resolutions:

a. That the school and college programs of health and physical education be strengthened with particular attention being given to the development of a high level of fitness on the part of youth who may be called into the service of their country.

b. That a national research and documentation center is needed to serve as a national focal point for research on physical fitness.

c. That increased command emphasis is needed to improve implementation of the Army's physical training program in the unit training phase.

d. That greater emphasis should be placed on the intramural sports program to make it a more dynamic program and one which provides benefit for the maximum number of personnel rather than a select few.

e. That more stress should be placed on motivation for physical fitness to include such things as a physical fitness award similar to the Marksmanship Badge. Ribbons indicating personal acievements in physical fitness should also be considered.

f. That the concept of the Army Physical Fitness Evaluation appears sound and should fulfill the Army's need for physical fitness measurement.

Physical fitness evaluation of male personnel over 40 years of age, however, should be on a mandatory basis with educational and medical safeguards provided to minimize risk factors.

g. That the Fort Benning "RUN FOR YOUR LIFE" Program is based on sound aerobic principles and should be beneficial as an Army-wide program.

h. That an Army Physical Fitness Institute to train selected officers and enlisted men would contribute immeasurably to the Army Physical Fitness Program. Graduates would provide the commander with the necessary skills and expertise to properly implement approved programs.

i. That further research and study is required in certain areas. Each agency represented will do whatever it can to further develop areas which follow:

(1) Varying means by which personnel can be motivated to first attain and then continue to maintain good physical fitness.

(2) The optimum scheduling frequency for physical fitness activities necessary for the maintenance of physical fitness.

(3) The determination of the benefits of a physical exercise program for personnel over 40 years of age.

(4) The physical fitness standards deemed necessary for various types of organization, i.e., what numerical or statistical standards are required for a rifle company?

CHAPTER 2

Introduction

Section I

DEVELOPMENT OF PHYSICAL FITNESS IN THE ARMY

Prior to World War I, the Army was unprepared to physicelly condition large numbers of men. During the war, the YMCA and other orgenizations furnished instructors end programs. Between World Wer I end World War II, some limited programs were developed, however, it was again necessary during World Wer II to turn to civilian physicel educetors to provide necessary leedership. For the first time a proponent for physicel fitness wes appointed and the Surgeon Generel served in this cepacity. New publications were published containing the first Army programs based upon scientificelly eccepted prectice. A physicel training school was elso established to trein instructors end supervisors. In 1946 the school was transferred to Fort Bregg, North Caroline and wes deeignated as the proponent for Army-wide physical fitnees. The school wes discontinued in 1953 and the United Stetes Army Infantry School was determined to be the moet eppropriete location for the proponent agency. The reeponsibility for Army-wide physical fitnees was transferred to Fort Benning in 1955.

Following 1955, a sound program of physical fitness was developed for all soldiers and the field manual was improved and expanded. The first Army Reguletion in the eree of physical fitness was elso adopted. Also eccomplished was ne publication of a pamphlet for personnel who must direct their own individual physicel fitness program. The testing of physicel fitness was expended and updated. At the present time, numerous studies ere being conducted end close liaison maintained with reseerch egencies, medicel orgenizations end physical educetors.

Section II

PHYSICAL DEVELOPMENT OF THE SOLDIER

The United States Army Infantry School hes elways been vitelly involved in the physical development of the soldier. As the proponent egency for the Army, this interest is not confined to the Infantry but rether extends to ell branches of the Army. It is with this thought that the School plens and monitors ell physical training programs. The Leadership Department is

responsible for program development and training literature for Army-wide usage. The department is also charged with the resident instruction of students in physical training. Through resident instruction, the department teaches the methods required for physical fitness development. Each course of instruction emphasizes training in this important subject to include planning, organizing and/or supervising physical training programs. Organized athletics and running programs are integrated in each Program of Instruction.

The relationship between effective job performance and physical fitness is constantly stressed by other instructional departments in the School as evidenced by the tactical field training exercises, escape and evasion problems, and in the Ranger and Airborne courses. The current trend is to tailor the physical fitness program to the job assignment of the individual concerned. Fitness evaluation is also in the process of being changed to reflect standards for job performance and to compensate for the age of the individual being tested.

Section III

FORT BENNING HISTORICAL BACKGROUND

The mission of Fort Benning is "to produce the world's finest infantryman." All major activities of Fort Benning are oriented toward the accomplishment of this mission.

The Infantry School is the largest of these activities with an annual output of 60,000 graduates of the 21 various courses. Included in this figure are allied students representing over 57 nations throughout the free world.

Fort Benning was founded October 7, 1918. The original encampment has grown to a spacious post encompassing 182,311 acres over varied terrain which are ideal for field training in tactical problems. Fort Benning which received its name from MG Henry L. Benning, a distinguished Confederate Army officer, has assumed an increasingly important role in today's Army. Many distinguished officers have served at Fort Benning since its early days. Among these are Generals Dwight D. Eisenhower, George C. Marshall, Omar N. Bradley, and Mark Clark.

The post provides many services for its population. Some of the major services include the dependent school system, providing education both on and off post for approximately 12,000 children. The vast youth activity program entails 16 activities with over 29,000 active participants and 518 adult volunteers. The post conducts a full and active religious program. There are 20 chapels on the post and average attendance is 11,273 per week.

Fort Benning hosts many distinguished visitors; 770 have been welcomed to Fort Benning this year. In addition, 14 distinguished visitors from allied nations have visited this post as part of the Army's continuing effort to maintain cordial relationship with our allies.

CHAPTER 3

Conduct of Symposium

Section I

GENERAL

The Physical Fitness Symposium was conducted for a 2 1/2 day period, in Classroom 26, Infantry Hall. The Symposium was officially opened at 0800 hours with an Opening Address by the Assistant Commandant of the United States Army Infantry School, Brigadier General John T. Carley. General Carley welcomed the attendees to Fort Benning and outlined the purpose and objective of the Symposium. He also emphasized the role of the Army as it pertains to the physical fitness of the soldiers.

Colonel William B. Steele, Chairman of the Symposium, made the procedural announcements and introduced the speakers and their topics from the prepared agenda. Each presentation was followed by a discussion period.

Section II

AGENDA

MONDAY, 12 OCTOBER 1970

0800-0815	Opening and Asst Cmdt's Welcome	BG Carley
0815-0830	Procedural Announcements by Symposium Chairman	COL Steele
0830-0915	Army Physical Readiness Training Program	Mr. Dawson
0915-0945	Army Physical Fitness Activities (Film)	Mr. Dawson
0945-1015	Coffee Break	
1015-1105	The Application of Aerobics in an Exercise Program	Dr. Ribisl
1105-1145	Run For Your Life	CPT Ingalls
1145-1300	Lunch	

1300-1315	Enroute to Eubanks Field	MAJ Parker
1315-1415	Airborne Demonstration	COL Welch
1415-1430	Enroute to Infantry Hall	MAJ Parker
1430-1445	Coffee Break	
1445-1515	Motivation "Why Be Fit?"	Mr. Dawson
1515-1630	Discussion	COL Steele
1900-2130	Official Dinner	BG Carley

TUESDAY, 13 OCTOBER 1970

0815-0900	The Effects of Exercise on the Knee	Prof. Klein
0900-0945	The Knee Joint, Structure, Function, and Limitations	Dr. Allman
0945-1015	Coffee Break	
1015-1100	Selection of Physical Fitness Test Events	Dr. Fleishman
1100-1145	Physical Fitness Testing in the Army	MAJ May
1145-1300	Lunch	
1300-1315	Enroute to Watson Field	MAJ Parker
1315-1400	Ranger Demonstration	LTC Hurdle
1400-1415	Enroute to Infantry Hall	MAJ Parker
1415-1445	Coffee Break	
1445-1530	Physical Fitness of Personnel Over 40	MAJ Leesne
1530-1630	Discussion	COL Steele

WEDNESDAY, 14 OCTOBER 1970

0800-0840	Infantry School/Center Activities Briefing	CPT Dukes

0840-0925	Contribution of Sports to Physical Fitness	Mr. McNamara
0925-0940	Coffee Break	
0940-1025	Motivation for Physical Readiness Through Athletics	COL Kobes
1025-1055	Preparation of Physical Fitness Leaders	CPT Thetford
1055-1145	Discussion	COL Steele
1145-1200	Closing - Commandant Appreciation	COL Steele

Section III

SPECIAL EVENTS

Airborne Demonstration: Symposium attendees observed a scheduled Airborne demonstration conducted on Eubanks Field. Personnel were briefed on the mission and organization of the Airborne Department, viewed a demonstration of the Airborne physical fitness qualifying test and were informed of the techniques used in airborne training to prepare a soldier for jump qualification. The demonstration culminated with a free fall parachute drop by cadre of the Airborne Department.

Ranger Demonstration: The Ranger Department also presented a demonstration on the Ranger Program of Instruction and operational techniques. The demonstration included techniques of rapelling, hand-to-hand combat, bayonet fighting techniques and pugil training. The Program of Instruction for the Ranger Course was briefly explained by outlining the activities of each phase of the training.

Official Dinner: An official dinner, hosted by the Chairman of the Symposium, was given during the evening of 12 October 1970 at the Fort Benning Supper Club. An informal hour and dinner were followed by entertainment as provided by the Fort Benning Infantry Chorus. Plaques were presented to selected attendees and an Infantry School momento was presented to all attendees. The Public Information Officer provided news coverage of this official function and of the Symposium procedures.

Section IV

CLOSING REMARKS

The Symposium was officially closed at 1200 hours on 14 October 1970. Colonel Steele, as chairman, made the closing remarks and expressed, on behalf of the Commandant, his appreciation for the attendance and contributions made by each attendee.

CHAPTER 4

SUMMARY OF PRESENTATIONS WITH BIOGRAPHICAL SKETCHES OF PRESENTORS

A condensed version of each presentation, followed by a short biographical sketch of each speaker is presented in this chapter. On record at the Infantry School is a taped version of the entire speech and subsequent discussions. The summation of the presentations are listed in order appearing on the agenda.

Section I

Summation of Presentation

on

THE ARMY PHYSICAL FITNESS PROGRAM

by

Mr. James S. Dawson

The overall directive which established this program is Army Regulation 600-9, "The Army Physical Fitness Program." This directive contains four subprograms which together form the physical fitness program for both men and women. This regulation places the responsibility for the administration of this program upon the local commander or supervisor. It directs a year-round program and specifies that all personnel be educated to appreciate the need for exercise. Finally this regulation directs that semiannual physical fitness testing be administered to all personnel below the age of 40.

The first of these programs is Physical Readiness Training. This is the mandatory on-duty training received by all personnel who are involved in training. This program is contained in Army Subject Schedule 21-37 entitled "Phyaical Readiness Training." Covered in this publication are schedules and programs for basic combat trainees (1st 8 weeks in the Army), for advanced individual training (9-16 weeks), and finally unit training. The current edition of this publication features periods of 15, 30 and 50 minutes duration. Time is divided in such manner that the allotted 29 hours, in basic combat training for example, will provide a period of exercise each day. This program was carefully planned and although it is a considerable change from previous editions of this program, appears to have solved many of our problems.

The second program is for Staff and Specialist Personnel. This program is designed for personnel who, due to job or duty assignment, cannot engage in group physical readiness training. Here the responsibility is divided between the commander and the individual. Guidance for the individual is provided in Department of the Army Pamphlet 21-1 for men, and 21-2 for women. Many activities are suggested and the philosophy is to engage the individual in some form of exercise.

The third program is the Special Services Sports Program. This program of voluntary sports activity is sponsored during off-duty time, and here again, the commander is responsible for assuring interest and participation. The special services division provides playing areas, officials, equipment and schedules. Organized leagues and informal sport activity is sponsored. For this reason there is something for all who care to participate in this intramural type sports competition.

The final program is the Weight Control Program. The policy is that all personnel maintain a satisfactory control of body weight in relation to height and bone size. The Medical Corps controls this program, yet again, the commander or supervisor is responsible for detecting and referring overweight personnel to the medical officer for evaluation and specification of a remedial program.

In conclusion, I would like to point out that this program is designed to involve all personnel in some type of physical activity. To acquaint you with many of the activities used in physical readiness training, a color film will immediately follow this part of the program. This film is titled "Physical Fitness, U.S. Army."

Bibliographical Sketch --- Mr. James S. Dawson

Mr. Dawson is the Physical Education Specialist in the Office, Doctrine, Development, Literature and Plans at the United States Army Infantry School. Upon graduation from West Virginia University with a major in physical education he taught and coached in high school. After service in WW II he returned to WVU as a member of the faculty and completed a masters degree there in 1951. Additional graduate work has been completed at New York University and Auburn University.

In 1951 he accepted a faculty position at the Army Physical Training School at Fort Bragg, N.C. where he directed research and coordinated Army-wide physical fitness activities. In 1954 he was a member of the Army General School staff at Fort Riley, Kansas, where he was in charge of a study of Army-wide responsibility for physical fitness. From 1955-1970 he has been

a member of the staff at the United States Army Infantry School, Fort Benning, Georgia where he has coordinated the School's mission as proponent of physical fitness Army-wide.

He is a member of several professional organizations to include the American Association of Health, Physical Education and Recreation. He has authored numerous studies, papers, and pamphlets, directed various physical fitness research projects for the Army, and planned numerous forms of training media to improve Army physical fitness programs.

Section II

Summation of Presentation

on

THE APPLICATION OF AEROBICS IN AN EXERCISE PROGRAM

by

Dr. Paul M. Ribisl

"Aerobics" is a term coined by Colonel Kenneth H. Cooper which refers to a variety of exercises that stimulate heart and lung activity for a sufficiently long period of time to produce beneficial changes in the body. Golf, bowling and isometrics are not good aerobic activities due to their low intensity of effort. In addition, exercises that demand a great deal of oxygen in a short period of time, in excess of the capabilities of the oxygen transport system, are known as "anaerobics." Wind sprints and short dashes are in this category and are too intense for middle-aged and older individuals. Exercises such as bicycling, swimming, brisk walking, and sustained running are excellent aerobic conditioners because their intensity is low enough that they do not create a large oxygen debt and high enough to stimulate the heart, lungs and circulation when performed over an extended period of time.

The "Aerobics" program as outlined by Cooper specifies a bare minimum of 30 points per week which can be accumulated in a variety of activities such as walking, running, running in place, bicycling, swimming and either handball, squash or basketball. Points are related to energy used and are awarded on the basis of intensity and duration, with greater points being awarded for more intense activities over an extended period of time. These points must be divided among 4 days per week which ensures the regularity that is beneficial from both a physiological and a psychological standpoint. The exercise should also be of sufficient intensity to elevate the heart rate to

a level of around 150 beats/min for 5 minutes or more - this is an approximate figure and should obviously be adjusted in older individuals due to the natural decline of maximal heart rate with age.

It is strongly recommended that every person be given a thorough medical exam prior to starting an exercise program. It is particularly important that an exercise electrocardiogram be given to every person over 40 years of age. Once medical clearances is given, it is advisable to adhere to the following principles of a sound conditioning program.

1. Start out at a low level and at first do less than you feel capable of doing.
2. Always warm-up before exercise for at least 5 minutes and do not stop abruptly towards the end of an exercise session but rather taper off gradually. Warm-up and taper off is particularly important for the older individual.
3. Progress slowly and introduce the overload principle on a graduated basis. The intensity of work should be gradually increased week by week at a rate which the body can adapt to. Individual differences are a factor to keep in mind.
4. Motivation, or the lack of it, is a major reason why people continue or discontinue to exercise. Research has demonstrated that significant changes can be made but the critical question deals with how to keep people motivated. Exercising with another person or involvement in a group with good leadership are two ways which have proven successful in the past.
5. An initial test of fitness is often recommended because it enables one to classify himself in a given fitness category. It is also a useful means of monitoring improvement, which could be an additional motivating factor. A run of one and one-half miles duration for time is recommended by Cooper for these purposes. However, from a safety standpoint the extremely unfit and older individuals should delay taking this type of a test until after about 6 to 10 weeks of training. By this time cardiovascular changes should make it a relatively safe test to perform.
6. Proper footwear is an important consideration and leg and foot problems appear to be at a minimum with use of the ripple-sole type of running shoe.

In conclusion, physical fitness programs in the Army should consider the "aerobics" method of conditioning because of its emphasis on development of cardio-respiratory endurance. Research in the area of motivation for exercise should be strongly encouraged if any of the current scientific knowledge about exercise and health is to have practical significance.

Biographical Sketch --- Dr. Paul M. Ribisl

Dr. Ribisl is an Associate Professor at the Applied Physiological Research Laboratory, Kent State University, Kent, Ohio. He received his Ph.D at the University of Illinois in 1966. Dr. Ribisl is a member of various profeasional organizations tc include the American College of Sports Medicine and the American Association for Health, Physical Education and Recreation and currently serves as the Chairman of the Research Council of the Midwest Section of the AAHPER.

Dr. Ribisl has done extensive research on Energy Metabolism and has written numerous articles in professional journals and contributed research papers. He is well versed in physical fitness and has competed as a marathon runner, to include participation ir the Boston Marathon.

Section III

SUMMATION OF PRESENTATION

on

THE "RUN FOR YOUR LIFE" PROGRAM

by

Captain Allan S. Ingalls

"Run For Your Life" is a voluntary running program for military personnel and dependents designed to provide a simple, yet effective method of improving the cardiovascular system. The program began at Fort Benning on 26 January of this year. It was developed and initiated by the Leadership Department in an endeavor to generate interest in a physical conditioning, self-improvement program for all personnel of the Fort Benning community. It is a progressive distance running program based on widely accepted principles of physical conditioning and is applicable to men, women and children.

In order to gear the running program to individual needs, three phases were designed. They are the Preparatory Phase, the Conditioning Phase, and the Sustaining Phase. The goal of the "Run For Your Life" Program is to progress to the Sustaining Phase and to continue running a minimum of 7-10 miles per week. It is most important that the participant does not strain, but start gradually and build up his sustaining power over a long period of time.

Because of its strenuous nature, participants should consult their physician prior to beginning the program. Personnel over age 30 should get a medical checkup prior to entering (blood preasure, weight, chest X-ray, electrocardiogram). Of course, there are numerous health benefits to be derived from this aerobic program. It increases the efficiency of the heart, lungs and blood vessels, and therefore decreases coronary disease. Additionally, it improves emotional stability and increases mental alertness.

As an incentive for continued participation, mileage certificates and patches are awarded for completing 50 through 500 miles of running in the program. Nine months after initiation, over 7,000 participants have entered the program and over 3,000 awards have been earned. Approximately 25% of the military strength at Fort Benning are participating and over 230,000 miles have been logged.

Recent modifications to the program include adjusting the running tables for age and sex, revising the requirements for medical clearance, and expanding the incentive awards for mileage up to 10,000 miles.

Because of the immense popularity of the "Run For Your Life" program here at Fort Benning, and in response to numerous requests from other locations, we have proposed that it be implemented Army-wide. To accomplish this objective, we have proposed that the program be included in FM 21-20, that it be published as a DA Pamphlet, and that it be administered through Special Services on all major installations. It is hoped that all three of these steps will be taken to insure the widest possible dissemination and administrative efficiency of the program.

The Leadership Department has recently received the Post Commander's approval of this concept. A draft DA Pamphlet is now being prepared which will be forwarded to CONARC outlining in detail the overall concept of the "Run For Your Life" Program, and the rationale behind it.

The "Run For Your Life" Program is one of the Infantry School's latest efforts to improve general health and physical fitness. It is not intended to solve all of the problems associated with physical fitness; but used as a supplement to other activities available, it is hoped that eventually the vast majority of participants will improve their general health and vigor through regular, progressive exercise. And, of course, it is hoped that this will concurrently enhance the performance of their daily activities.

Biographical Sketch --- Captain Allan S. Ingalls

Captain Ingalls attended Western Maryland College and received a BA degree in French/Education in 1966. He participated in the ROTC program and received

a commission in the Regular Army upon graduation. He has served as a Company Commander in Germany and as an Advisor in the PHOENIX Program in Vietnam. Captain Ingalls has been assigned to the Infantry School for the past year and is presently the Operations Officer for the Conditioning, Combatives and Drill Committee, Leadership Department. He is scheduled to attend the Infantry Officer Advanced Course in January 1971.

Section IV

Summation of Presentation

on

MOTIVATION "WHY BE FIT"

by

Mr. James S. Dawson

This presentation consisted primarily of an introduction and preview of an official Army video tape. The major theme, as indicated by the subject, was to assist the soldier to understand the benefits of exercise and the effect it has upon his body and to motivate him to maintain his physical fitness. Emphasis was placed upon the relationship of physical fitness to the various job assignments of the soldier dictated by both training and combat situation. The presentation was followed by showing of the tape "Why Be Fit."

Section V

Summation of Presentation

on

THE EFFECTS OF EXERCISE ON THE KNEE

by

Professor Karl Klein

For years we have assumed all human knees were of the same structure and that the caucasian knee was the same as all others. Based upon recent correspondence with Japanese authorities it appears that differences do exist. Knee ligament injuries to Japanese are major to the lateral side of the knee, while those of caucasians occur most frequently to the medial aspect of the knee. Similar investigation in India reveals other differences among Hindu populations that squat for long periods of time during the growing years

ceusing growth deficiencies of the tibia pleteau end ligament instebility.

Years of reseerch and rehabilitetion work have led me to conclude that posture end movement petterns ere vital to knee health, and that the hamstring muscle group is e key to sound knees.

Growth and development changes in the joint structure of the knee from age 3 to 21 years is significant. Femur and tibula growth bring stebility to the knee as age increases. Tests were conducted by 2,500 subjects using e ligament testing instrument. The result indicated a tightening action of the ligament structures up to age 13, followed by a critical period of looseness between eges 14-18. There is no way to control this variation and the proper action to protect high school level boys from knee injuries is to condition their muscles, teach them proper mechanics, i.e., teach them to move with toes inward rether than outwerd, and emphasize the necessity for maintaining proper weight distribution. During college years the knee becomes more stable and tightness again occurs as the growth process is completed.

Postural patterns heve also proved to be an importent factor in one's susceptibility to knee injury. Athletes tend to have a more normal posture then nonathletes, perhaps due to better muscle treining and better instruction. Lateral postural inbelance has e detrimental effect. In a study of 585 school age boys, it was discovered in elementery school that 74% had a lateral deviation of 1/4 inch, in junior high school 84% had lateral inbalence of epproximately 1/2 inch, and in high school, 92% devieted a bit over 1/2 inch.

Activities thet frequently cause knee injuries are those requiring sharp twisting motions that force the knee inside the toe and ceuse external tibie torsion. This is the basic mechanism of knee injury. Further ectivities thet stretch the knee ligaments, such as full squet jumps and full squats in weight training results in joint instebility end earlier arthritic chenge. Generally, no more than a helf squet should be used in conditioning. There ere rere exceptions of course, for some men ere more adaptable end suffer less ill effects.

Much more must be leerned about this joint, as it is probably the most importent one in the body. For example, there is some reeson to question the necessity for deily progressive weight treining. Once strength is established, loss of leg strength is not a problem but there is denger of knee muscle fatigue from deily workouts. Another aree to be studied is the relationship between knee injury end lateral posturel inbalence. To date my study evidence on some 125 cases, largely post operative, shows 80 percent being injured on the short leg syndrome side. The mechanics of movement in which the short leg side tends to "toe out," pleces this side in e more vulnerable position for the potential of injury. Corrective procedures in the use of the heel lift to belance the leteral posture

seems to be a mechanical solution to produce body symmetry of the leg and foot in movement. With such correction the problem of proper running, cutting, and turning techniques in pigeon toed action is more easily learned and the knee is less vulnerable to injury potential. Heel cleats are also a cause of knee injury and should be removed from all football and other sportshoes - they are easily replaced by a regular heel or lock-on circular heel or heel bar.

Biographical Sketch --- Professor Karl Klein

Karl Klein has been a professor in the Division of Physical Education for men, the University of Texas at Austin since 1954. He is currently assigned to the Rehabilitation Laboratory at the University and serves as a consultant in physical rehabilitation. In addition to his teaching experience at the University of Texas, he served on the faculties of Eastern Washington State College, Ithaca College, and the University of Buffalo. During WW II he spent several years with the U. S. Naval Rehabilitation Service.

Professor Klein has been active in professional organizations and has held many positions of leadership in the American Association of Health, Physical Education and Recreation, and in the American Corrective Therapy Association. He is a member of the Research Council, AAHPER, National Athletic Trainer's Association, Committee on Protective Equipment for Sports, and is a Fellow of the American College of Sports Medicine, and American Corrective Therapy Association.

He is the author or co-author of three books on the knee joint, has written many articles in medical, sports medicine, physical education and athletic periodicals; and has presented numerous papers before local, state, national and international professional meetings and symposiums.

Section VI

Summation of Presentation

on

THE KNEE JOINT - STRUCTURE, FUNCTION, AND LIMITATIONS

by

Dr. Fred L. Allman

Knee injuries in sports are frequently a serious problem. There is need for better understanding of available knowledge concerning the knee as well as additional knowledge in areas that remain to be solved. The knee is often thought of as being a hinge type joint, yet it possesses certain rotary

motion and it is this rotary motion that is often involved in the injury producing mechanism.

The knee does not possess the inherent stability found in the hip and ankle joints. Ordinarily stability depends upon the condition of the ligaments of the knee and the supporting muscles of the extremity, both the thigh and leg, and there is very little natural bony stability. Rotation takes place as the knee is flexed and extended and when this rotating motion is interruptad or suddenly stopped - as in the soccer player who kicks at the ball, misses and hits the ground - injury often results.

Tears to the medial and lateral meniscus frequently produce symptomatology which leads to an inaccurate diagnosis. This symptomatology relates to swelling of the knee, giving way, jointline tenderness, an occasional click or pop as well as a history of a twisting or cutting mechanism at the initial episode. Once diagnosed, torn menisci are best treated by surgical removal of the entire meniscus. Ligamentous tears about the knee are also very frequent, especially to the medial collateral ligament. It is very important that the extant of injury be ascertained immediately following injury so that the proper treatment may be instituted. Injuries to the medial collateral ligament and fibular collateral ligament, in which there is complete rupture of the ligament and abnormal motion present, usually present no difficulty in diagnosis; however, isolated tears of the anterior cruciate ligament and posterior cruciate ligament can be among the most difficult diagnoses to make in orthopedic surgery. It is difficult for physicians, coaches, and trainers to realize that an individual may be able to walk quite normally even though he may have a completely torn ligament. Also, on occasion, there is very little swelling present. This is especially true of the medial collateral ligament when it is torn below the jointline. These individuals as a rule experience some difficulty when the knee is placed in a stressful situation such as going up and down steps, cutting sharply, etc.

It should also be remembered that if abnormal motion is present, something has to have been torn completely. An incomplete tear of a single ligament will not produce abnormal mobility in a joint. It should also be remembered that ligaments do a poor job of healing themselves, the anterior and posterior cruciate ligament being totally unable to heal themselves since they are within the joint. The medial collateral and fibular collateral ligaments do heal with scar tissue but usually in a position of elongation which allows abnormal mobility to be present in the joint and this abnormal mobility produces disfunction and eventual degenerative arthritis.

There are a number of factors that are related to injuries about the knee. These include the magnitude of force applied, the ability of the knee and leg

to dissipate the force, the structure of the leg - for example, a bowlegged person is less likely to sustain an injury than one who is knock-kneed; the relation of the toe direction - for example, a pigeon toed person is less susceptible than one who is slew-footed. Of course, conditioning is a very important factor. As mentioned previously, the stability of the knee is dependent upon good, strong musculature and ligamentous structure.

Another important factor that should be considered by those that attend athletes and other active people immediately following an injury is that a compression bandage and ice if applied initially to help prevent swelling will usually speed recovery. Factors which should be considered in the prevention of knee injury include examinations to determine muscular or postural inbalances, proper conditioning, use of proper shoes, use of proper playing surfaces, correct habit pattern and other similar factors. After any injury and especially injuries to the lower extremity and most especially the knee, total rehabilitation is essential. The rehabilitation should be well balanced so that good strength, good flexibility and good endurance are incorporated in the program and the final product is a functional extremity which is capable of performing as well or better than it was prior to injury. Conditioning and rehabilitation should be individualized for ideal results. In taking care of masses, it is sometimes difficult to individualize the program; however, the more individualized the program can be, the better the results to be expected.

Biographical Sketch --- Dr. Fred Allman, Jr., M.D.

Dr. Allman is an orthopedic surgeon and Director of the Sports Medicine Orthopedic Clinic in Atlanta, Georgia.

Dr. Allman is a nationally recognized orthopedic surgeon and an authority on the knee joint. In addition to his busy practice in Atlanta, his services are much in demand as a consultant and lecturer. He contributes much of his time to further the cause of physical fitness throughout the country.

Dr. Allman is very active in professional medical and physical fitness organizations. He is a fellow in the American College of Sports Medicine, and is the past president of that organization. He is an author having contributed to professional journals and is the co-author of a book with Professor Karl Klein on the knee joint.

Section VII

Summation of Presentation

on

SELECTION OF PHYSICAL FITNESS TEST EVENTS

by

Dr. Edwin A. Fleishman

An extensive research program on motor abilities and physical fitness testing and measurement was described. Specifically, the work grew out of attempts to identify the basic abilities contributing to performance in a wide range of perceptual-motor tasks and jobs. The original impetus for these studies was the need to develop more valid tests for pilots and other military specialities. Eleven basic perceptual-motor abilities identified in this program and their methods of measurement were described.

In the physical fitness area, the plethora of available tests were reviewed and established and new tests developed in experimental batteries and administered to large numbers of military subjects. The objective was to identify the range of fitness factors that need to be assessed, to provide a better understanding of what was being measured, and to recommend the specific tests diagnostic of each factor. From the correlations among test performances, nine primary fitness factors were identified: Dynamic, Explosive, Static, and Trunk Strength, Extent and Dynamic Flexibility, Gross Body Coordination, Balance and Stamina. The best measures were assembled into the Basic Fitness Tests, which has high reliability and maximum efficiency in covering the basic abilities without overlap.

National normative studies have developed norms and developmental curves for each test as well as mass administration and scoring procedures.

The relation of these tests to existing batteries and implications for measurement of military physical performance was discussed. The use of these tests in studies of stress and motivation was described. The importance of maintaining motivation and leadership in test performance was stressed. The research described has been sponsored by all three military services.

Biographical Sketch --- Dr. Edwin A. Fleishman

Dr. Fleishman is the Senior Vice-President of American Institutes for Research and Director of the Washington Office, Washington, D. C. Dr. Fleishman earned the Ph.D. at Ohio State University, Columbus, Ohio in 1951. From 1951-1956 he was the Director of Perceptual-Motor Skills Research Laboratory

of the U.S. Air Force at Lackland Air Force Base, where he conducted research into the nature of perceptual motor ability and relation to skill, learning, and training. He was also responsible for the development of a psycho motor test used to select pilots and other Air Force personnel. He was a professor at Yale University from 1957-1963. While at Yale he was the Director of the Human Skills Research Laboratory. One of his projects for the Office of Naval Research was "The Development of Criteria of Physical Proficiency."

In 1962-1963 he was a recipient of a Guggenheim Fellowship at Yale and served during the year as a visiting professor at the Israel Institute of Technology. Dr. Fleishman is the author of over 100 journal articles and research reports. He is the author of several books, including the book "The Structure and Measurement of Physical Fitness." He is currently the editor of the Journal of Applied Psychology. He has also served as an advisory panel member of the Psychology and Social Service in the Office of the Secretary of Defense, and as consultant to the Army Surgeon-General.

Dr. Fleishman is quite active in various professional organizations, and is a Fellow in the American Psychology Association and is a member of the American Association of Health, Physical Education and Recreation.

Section VIII

Summation of Presentation

on

PHYSICAL FITNESS TESTING IN THE ARMY

by

Major Billy W. May

Physical fitness testing is a vital part of any physical training program and is used to measure the progress or deficiencies of individuals or the unit as a whole. Fitness testing began in the Army in 1944 and there are currently three tests that have specialized purposes, and one standard test administered to all personnel in the Army under 40 years of age; this being the Physical Combat Proficiency Test (PCPT).

As a result of an extensive study, the Leadership Department, United States Army Infantry School, developed a new test entitled the "Army Physical Fitness Evaluation." This test is designed to be a more accurate measure of the basic components of physical fitness such as strength, endurance, agility and coordination. This test will evaluate individual physical readiness to perform assigned tasks, taking into consideration age and job assignment, and will consist of a battery of seven subtests applicable to all segments of

the male population of the United States Army. It is intended that this test will continue to be conducted semiannually for all personnel from the time of entering active duty until termination of service. The applicability of the proposed tests are as follows:

Test A: Specialty Test (CONARC Schools, Students, Staff and Faculty, and Personnel in TDA Units).
Test B: Combat Service Support Units; Trainees in BCT, AIT and CST.
Test C: Combat, Combat Support Units.
Test D: Inclement Weather/Limited Facilities Test.
Test E: Airborne Trainee Qualifying Test.
Test F: Ranger/Special Forces Trainee Qualifying Test.
Test G: Minimum Physical Fitness Test (Age 40 to Retirement).

The benefits expected to be derived from the proposed Army Physical Fitness Evaluation are:

--Participation of all military personnel who are medically fit from age 17 to retirement.
--Test areas of physical fitness associated with duty assignment.
--Minimum facilities and equipment.
--Minimum personnel and time to administer the test.
--Improved measurement of the components of physical fitness.
--Minimize human judgment in scoring.
--Scoring tables will compensate for age.

It is anticipated that the APFE, designed to replace the PCPT and all other fitness tests presently in use in the Army, will be ready for field use in early 1971.

Biographical Sketch --- Major Billy W. May

Major May received a BS degree in physical education from Northeast Louisiana State College in 1959. He entered the Army in January 1960, after being commissioned a second lieutenant through ROTC. Major May has served two tours of duty in Vietnam, the most recent assignment being with the 25th Infantry Division as Battalion Operations Officer. He was assigned to the Leadership Department in September 1969, where he has served as a member of the Conditioning, Combatives and Drill Committee. Major May's awards and decorations include the Bronze Star Medal with "V" device, three oak leaf clusters; Air Medal with four oak leaf clusters; Army Commendation Medal with "V" device, one oak leaf cluster; Purple Heart; Vietnamese Cross of Gallantry; Combat Infantryman's Badge; and Airborne Badge.

Section IX

Summation of Presentation

on

PHYSICAL FITNESS OF PERSONNEL OVER 40 YEARS OF AGE

by

Major Arthur E. Lesesne, M.D.

Prevention of heart disease can be noticeably aided by implementation of an exercise program in the over 40 category. The benefits of a planned physical training program will produce in most cases, excellent results. The impact of this program is directed toward sedentary individuals who would benefit cardiovascularly from an exercise period. A change of opinion among physicians and exercise specialists indicates that exercise may prevent heart disease.

A program of planned progressive activity should encompass three phases: warm-up, work (heart rate increased), and tapering off. The program should be equated with job function. Begin a starter program for six weeks, doing moderate low level exercising, then progressing. The participant should keep a personal record to determine any extended stress during the exercise period; then determine which activity produces detrimental effects (elevating heart rate, shortness of breath, etc.).

Important for those personnel over 40, must be a physical examination, to include EKG and stress testing. Also, a physician should be consulted for test clearance to prohibit any deficiencies during exercising. Clinical studies have indicated that exercise should be utilized gradually, especially for the older individual. Periodical physical examinations should be an integral part of the program.

Biographical Sketch --- Major Arthur E. Lesesne

Major Lesesne is an Internist in the General Medical Service, Department of Medicine, Martin Army Hospital, Fort Benning, Georgia.

He completed his premedical education and received his BS degree at Davidson College, Davidson, North Carolina in 1961. He earned an MD at the Medical College of South Carolina, Charleston, South Carolina in 1965. His internship was completed at Grady Memorial Hospital, Atlanta, Georgia in 1966, and his residency at Georgia Baptist Hospital in Atlanta in 1969.

Major Lesesne entered active duty with the Army in August 1969. He completed his Army Medical Department Officer Basic Course at Fort Sam Houston, Texas, in October 1969 and has practiced Internal Medicine at Fort Benning since that date.

Section X

Summation of Presentation

on

CONTRIBUTION OF SPORTS TO PHYSICAL FITNESS

by

Mr. William G. McNamara

Sports have been employed to attain military physical fitness almost since the dawn of history. Sports teach vital lessons: teamwork, self-discipline, mental alertness, endurance, and resourcefulness. All are attributes required for victory and survival on the field of battle. A sports program should be integrated into the Army physical training program. Motivation would be increased through an active sports participation.

The United States is the only major country in the world today that does not have a department specifically responsible for sports development. The President's Council on Physical Fitness and Sports was given the mission to improve the fitness of American youth, but was not given the necessary personnel and resources to do the job. Similarly, the Army lacks a centralized department for physical development and training.

Today we find the responsibility for the various physical fitness programs of the Army divided between many agencies of the service. The Surgeon General, the Adjutant General, the Assistant Chief of Staff for Force Development, Headquarters, Continental Army Command and the Infantry School are involved in the physical fitness program for the soldier. Each agency certainly has an interest; however, the Army does not have a single agency responsible for the physical development and training of the soldier.

Also sorely lacking is an institute for the development of qualified physical training experts who are capable of teaching sports and physical training. The Army formerly had such a school for physical training instructors but it was a victim of economy cutbacks during the Eisenhower administration.

Numerous foreign armies have realized the importance of physical conditioning and have operated fitness schools for many years. The British, French, German, Italian and Australian fitness schools are just a few that are in

existence today. Sports and physical training are merged into the Program of Instruction to maintain the motivation and incentive in the program. The need exists for the Army to organize such a facility and to conduct liaison with national and international organizations for proper development of our physical training programs.

Sports integrated into our physical fitness programs could assist in motivating the soldier by stimulating the competitive spirit. Organized athletics must be planned and conducted during duty hours. Sports events after duty hours only appeal to those who are already physically fit and possess a desire to participate. Physical fitness should also become a matter of concern during the annual Inspection or General's visit to each unit. The standards for personal fitness should receive the same command emphasis as the standards for maintenance of equipment and administrative records.

Again let me emphasize that sports and physical training should be merged into one program for fitness. One office at the Department of the Army level should be charged to coordinate activities and an institution should be formed to train physical training specialists. These innovations would exterminate the bugs that plague the present physical training program.

Biographical Sketch --- Mr. William G. McNamara

Mr. McNamara is the Director of the Secretariat, Interservice Military Sports Council, Department of Defense, Washington, D. C. Mr. McNamara served in the U. S. Army and retired as a Colonel in 1967. Since that time he has served with the Department of Defense in the furtherance of sports activities. He is very active in the International Council of Military Sports (CISM) and currently serves as Chief of Information for the organization. His duties as the Director of the Interservice Military Sports Council Secretariat have required traveling to all of our allied countries. He coordinates the selection, training and support of service athletes who compete in the Pan American Games, the Olympics, and military sports competitions to include the CISM Games.

Mr. McNamara is a tireless advocate of physical fitness and constantly seeks to improve and promote improved physical fitness in the armed forces. In his travels he has visited and studied the Physical Fitness Academics of many foreign countries. He has supported and encouraged the formation of the Marine Corps Physical Fitness Academy.

Section XI

Summation of Presentation

on

MOTIVATION FOR PHYSICAL READINESS THROUGH ATHLETICS

by

Colonel Frank J. Kobes, Jr.

Throughout the centuries, military leaders have recognized that the effectiveness of fighting men depended to a large degree upon their physical condition. Today, the military effectiveness of soldiers is just as dependent upon physical fitness as it has ever been. While present physical readiness programs are adequate to obtain acceptable levels of physical fitness, one important psychological factor is overlooked--in order for a soldier to stay physically fit, he must be motivated to fitness.

One way to motivate young men for physical fitness is to make use of needs or goals that appeal to them. One obvious need is that of having "fun." Thus a good competitive athletic program is the keystone of any physical fitness program. It is the incentive for attaining and keeping good physical condition. It has unlimited potential for training young men. In addition to the maintenance of physical fitness, a good sports program conducted at intra-unit level has noncomitant values.

One of the most valuable aspects of a sports program is that it provides soldiers with actual experience in leading others in a challenging and highly competitive situation. It also provides a rallying point around which soldiers can focus their display of the high esprit de corps that is essential to high unit effectiveness.

Athletics provide men with an intensive and competitive atmosphere in which to refine many of the traits deemed desirable in good soldiers and officers. Perserverance, the spirit of cooperation, the necessity to repeatedly display physical and moral courage, the ability to think and react in a positive manner when under mental and/or physical pressure are some of the characteristics of successful combat leaders, and are capable of being tested and refined on the athletic field. Further, sports have a special role in reinforcing values for an individual such as self-reliance and intensity of purpose.

Finally, ethletics tend to develop manlinese, aggressiveness, determination end the ability to think end act quickly under pressure, as well as providing an outlet for frustretion end preesuree.

Biogrephical Sketch --- Colonel Frank Kobes, Jr.

Colonel Kobes is the Profeseor and Director of the Office of Physical Educetion, United States Militery Academy, West Point, New York. He is a graduete of the United States Military Acadamy and eerned e masters degree at New York University. He served as an essistent football coach at United States Military Acedemy upon graduation, end with the Third Division in Europe in 1942-1943, as an instructor at United Stetes Army Infantry School in 1943-1944, end with the Department of Tectics at United States Military Acedemy in 1944-1946. He retired in 1946 and returned to ective duty in 1951 in the Office of Physical Education et United Stetes Military Academy, where he was appointed Diractor in 1953 and Permanent Professor of Physical Educetion in 1959. Serves et United Stetes Militery Academy to date.

Colonel Kobes is a member of verious professional organizations, is a consultant to the Netional YMCA Physical Educetion Committee. He is e Fellow, American College of Sports Medicine and is currently the Director, Academy of International Council of Militery Sports (CISM).

He has contributed to various journals end is much in demand as e lecturer and speaker at meetings of professional end ley groups. He ie recognized as a leading authority in the field of physical fitness.

Section XII

Summation of Presentation

on

PREPARATION OF PHYSICAL FITNESS LEADERS

by

Captain William B Thatford

Subsequent to 1956, the United States Army attempted severel methods to improve the physical condition and readiness training of the Americen soldier. Multilevel physical training conferencee, civilian-military seminars, physical training managerial classes in branch service schools, and the development of a detailed field manual, have not elimineted the major problem areas.

Physical training instructors at unit level are not presently trained sufficiently to provide a highly motivated, efficient and effective program of physical development and maintenance. Physical injuries have resulted from improper administration of physical training programs, with subsequent hospitalization, wasted manhours, and the development of poor attitudes toward physical training. The current Army Athletic and Recreation Program (A&R) is not being implemented by small units at its optimum level due to a lack of qualified, knowledgeable personnel.

To maintain a modern and relevant physical training program, a need exists for the establishment of a centralized Institute of Physical Fitness. Such an institute would provide the economy, uniformity of standards, evaluation of current physical training programs, and conduct of research and development within its capabilities. The main objective of the institute would be to produce qualified instructors to be used at unit level to effectively implement physical training programs on an Army-wide basis. The institute would be organized into an Academic Section and a Research and Development Section, under the staff supervision of the Leadership Department, United States Army Infantry School.

In the Academic Section, a student-faculty ratio of approximately 5:1 would exist where physical training instructors would be trained in the most effective and modern methods of organizing and implementing Army physical training programs. The program of instruction would include areas such as a study of the current problems in physical training, and technical subjects such as Anatomy, Physiology, and Kinesiology. The course would be seven weeks in duration with graduates receiving an additional skill indicator to their present Military Occupation Specialty. Six cycles of this course would be conducted the first year, with 50 students per cycle. As the program is perfected, additional classes would be scheduled to meet the needs of the service.

The Research and Development Section would be staffed by specialists essential for a valid research program. The Research and Development Section will act as a centralized collection point and repository to collate the information gained from the many agencies conducting research in the field of physical fitness. An aggressive research and development program will also provide a continuous means of evaluating Army physical readiness training and develop and evaluate new methods of physical training and testing.

The Institute of Physical Fitness can be organized and operated at a minimum cost at Fort Benning since many facilities are already in existence. In addition, $300,000 have been budgeted and approved for the improvement and enlargement of existing facilities. The last quarter FY 72 is the time period in which the proposed institute could be activated.

The primary purpose of this institute would be to train leaders at the user level to implement the existing programs, develop new techniques and programs, provide a centralized research facility and provide a focal point for collection and evaluation of all physical fitness programs.

Biographical Sketch --- Captain William B. Thetford

Captain Thetford enlisted in the Army in 1957 and attended Infantry Officer Candidate School in 1965, receiving a reserve commission as a second lieutenant, Infantry. He has subsequently completed two hours of duty in Vietnam, the first as an advisor to a Vietnamese battalion, and the second as a Company Commander and Brigade Assistant S3, with the Americal Division. Captain Thetford is currently assigned to the Conditioning, Combatives and Drill Committee, Leadership Department, and will attend the Infantry Officer Advanced Course in November 1970. His awards and decorations include: Silver Star; Bronze Star; Air Medal; Army Commendation Medal; Purple Heart; Vietnamese Galiantry Cross; and Combat Infantryman's Badge.

CHAPTER 5

Main Topics of Discussion

Following each topic presented during the symposium, a period of discussion was conducted for the purpose of exchanging views concerning the main points contained in the lectures.

Section I

THE APPLICATION OF AEROBICS IN AN EXERCISE PROGRAM

One primary topic of discussion during the conference was the application of aerobics in an exercise program. Aerobics, as defined during the discussion refers to the amount of oxygen that an individual is capable of processing during periods of maximum exertion. Thus, the conditioned man will take in and utilize considerably more oxygen than the deconditioned man, yet the conditioned man's heart rate will be much slower. According to studies conducted by Dr. Paul M. Ribisl, of the Applied Physiological Research Laboratory at Kent State University, it is usually necessary that an individual run at least two miles if a sufficient measure of aerobic fitness is to be obtained. The degree of stress involved in such exercise make obvious some basic factors which should be considered prior to entering an aerobic fitness program. Generally, there are three principles involved in any aerobic routine. Initially, the amount of exercise attempted should be at a level which is easily attainable to the individual. Secondly, progress should be maintained at a moderate pace. The most recurrent type of injury in any physical fitness program is muscle strain resulting from trying to accomplish too much in too little time. Thirdly, time should be allotted at the end of each exercise period to provide for a gradual tapering off of the individual's heart and respiratory rate. For personnel thirty-five years of age or older, a medical examination should definitely be a prerequisite to beginning any aerobic program. As a minimum, the test should include a blood pressure check, weight-height evaluation, chest X-ray and EKG. Consideration should also be given to the selection of proper footwear. The leather cross-country style running shoe with ripple sole and built-in arch support is generally recommended as best for this type of program. It was the concensus among those in attendance at the symposium that since the average individual could experience remarkable results with a properly implemented program, aerobics had a definite application in physical fitness.

Section II

EFFECTS OF EXERCISE AND STRESS UPON THE BODY

The obvious benefits of regular exercise are improvement in muscle tone, the increased ability to accomplish work with less effort and the general ability to eat, sleep and feel better. There are, however, several misconceptions concerning the effects of exercise upon the human body. One of the most prevalent seems to be the idea that over a period of time strenuous exercise will result in an enlarged or "athlete's" heart. This is based upon the fact that the heart, like any other muscle, will increase in size when subjected to regular exercise. The small degree of enlargement involved is a normal reaction, however, and is in no way harmful to the individual. Nonetheless, there are other aspects of athletic programs which do create serious problems. One of these is the recurrence of knee injuries. The majority of knee injuries involve some degree of damage to the medial ligaments. Preventive measures generally include development of the muscles and connective tissue in the knee area. Strengthening the quadricep and hamstring muscles greatly increases stabilization of the knee joint. Most of the exercises recommended for this purpose require some type of apparatus. Distance running, however, is one of the best exercises for strengthening the knee ligaments and requires minimum equipment.

Section III

EVALUATION OF PHYSICAL FITNESS

As mentioned several times throughout the discussion, there are many aspects of physical fitness which can be measured through a variety of tests. It was generally agreed that the physical fitness components of greatest concern to the Army are strength, coordination, agility and endurance. The majority of conferees agreed that the new Army Physical Fitness Evaluation did, in fact, provide an accurate measure of these fitness components. There was some discussion as to the possible overlap of events found in tests which included more than one exercise for evaluation of strength in the shoulder girdle. It was pointed out, however, that the appearance of two events such as push-ups and the horizontal ladder in the same test was intentional in that it provided a more thorough measure of fitness in the upper body region. Several problems characteristic to physical fitness testing in the Army were also discussed during the conference. Since motivation is a factor of prime concern, it was noted that if the new Army test is to succeed, it must instill some degree of competitive spirit among the participants. Also, to insure uniformity in testing at various installations around the world the apparatus required to administer the new test should remain simple in design and relatively inexpensive to build. Since time is normally a problem due to critical scheduling in most units, the test must facilitate administration requiring a minimum amount of time.

Section IV

MOTIVATION IN TRAINING AND TESTING

Discussion of the apparent lack of motivation toward physical fitness revealed a need to place greater emphasis upon the life-long benefits which can be derived from a regular exercise program. The fact that good health through physical fitness is one area of development which can be attained during military service and then readily carried into civilian life is a strong motivating factor when properly explained to the individual soldier. The presentation of awards such as badges or ribbons to be worn on the uniform was also brought out as a possible means of increasing motivation. At this time, no incentive badges are awarded to those individuals who excel in physical fitness. The Army's "RUN FOR YOUR LIFE" Program does, however, employ the use of certificates and patches awarded for distance running. The success of this program has been outstanding, and plans to develop some type of physical fitness medal are currently being considered.

Section V

THE "RUN FOR YOUR LIFE" PROGRAM

The overwhelming success of the "RUN FOR YOUR LIFE" Program at Fort Benning greatly impressed most of the conferees; however, increasingly severe weather was one factor brought out that might adversely affect the program during the winter months; however, the "RUN FOR YOUR LIFE" Program facilitates year-round participation in most parts of the United States. It has been proven that a properly clothed person can continue a running program in all but the most severe winter weather. For those areas where an outdoor program is not feasible during the winter, studies are being conducted to equivocate running in place and rope skipping to outdoor distance running. A certain degree of concern developed over the possibility that sudden discontinuance of a running program, for any reason might result in some form of medical complication. A discussion of this matter revealed that running is one of the best forms of overall physical conditioning. If a running program is interrupted, regardless of the degree of conditioning achieved, no medical complications will occur. Should the interruption continue for any length of time, however, it is recommended that the individual resume his training at a moderate pace.

Section VI

CONTRIBUTION OF SPORTS TO PHYSICAL FITNESS

As pointed out during the lecture, there are many benefits to be derived from including sports in a physical training program. Sports teaches such vital lessons as teamwork, self-discipline, mental alertness, endurance and resourcefulness. In addition, the inclusion of a sports program breaks the monotony of routine calesthenics, thus greatly increasing motivation among the participants. A closer discussion of this area of fitness disclosed that the Army sports program lends itself more toward accommodating the accomplished athlete rather than the average individual. Although the existing facilities in most cases seem quite adequate including gymnasiums, football, and baseball stadiums and swimming pools, they are used by a relatively small percentage of the Army population. More effort should, therefore, be devoted toward organizing intramural sports, as competition between units, thereby encouraging the average player to participate.

Section VII

PREPARATION OF PHYSICAL FITNESS LEADERS

The obvious advantage of having a Physical Fitness Institute at Fort Benning would be in providing highly qualified physical training instructors down to company level throughout the Army. Other advantages brought out during the discussion include the fact that the proposed Army Institute of Physical Fitness would provide a centralized facility for the development of all Army physical fitness programs. This would insure uniformity in program development while simultaneously providing a standard means of research and evaluation of information.

Section VIII

PHYSICAL FITNESS OF PERSONNEL OVER FORTY YEARS OF AGE

In dealing with personnel who are over forty years of age, moderation cannot be too greatly emphasized. Views expressed by physical educators who had experimented with this particular age group indicated that advancing age induces certain hazards to an exercise program. However, a greater hazard is the absence of many years from any form of regular exercise. The most dangerous aspects involved with personnel over forty years of age is that of overworking the unconditioned heart to the point where cardaic arrest results. This danger can be easily avoided, however, by adhering to the proper precautionary measures such as a complete medical examination prior to beginning an exercise program and moderate low level exercising when the program is initiated. The tapering off period is of critical importance in this area. For example, many people fail to realize that entering a sauna bath

immediately following a period of vigorous exercise can be extremely dangerous. The individual's heart rate, already increased by exercise, is pushed to the point of cardiac arrest by suddenly increasing the body temperature. Simply allowing the heart and respiratory rates along with the body temperature to return to normal prior to entering the bath would minimize this danger.

CHAPTER VI

Conclusions and Resolutions

Section I

CONCLUSIONS

1. Each level of civilian education must institute and emphasize an effective physical education program for the nation's youth in order to insure that students are physically prepared to assume their responsibilities as either citizens during peacetime or future soldiers in the event of a national mobilization.

2. Maintenance of higher standards of youth fitness will result in early detection and corrections of physical defects prior to military service, reduction of training injuries due to physical ineptness, reduction in training time to attain fitness standards for military service and finally improve the physical and emotional capabilities of our youth for military service.

3. The Army should provide maximum and continuous support to civilian educators and programs to improve the fitness of our nation's youth.

4. Physical fitness is essential to total military preparedness and should receive equal emphasis with the development of technical skills.

5. Commanders at all echelons of command must develop, plan, supervise, and execute a program of physical fitness which is tailored to the job requirements of his unit.

6. The current Army Training Program for physical fitness is adquate to meet the requirements of the present concept of warfare, however, the policies and directives in many instances are not being properly implemented at the user level.

7. There is a requirement to improve motivation to overcome the complacency towards physical training.

8. Continued research and evaluation of all aspects of physical fitness are required and effective coordination and liaison with other services and civilian agencies must be emphasized to enhance the Army's Physical Fitness Program.

9. The evaluation of physical fitness must concentrate on testing the physical components and skills required to perform the assigned tasks related to the soldier's military assignment.

10. Physical abilities deteriorate with advancement in age, therefore, testing and evaluation of fitness should also consider compensating for the age of individuals being tested.

11. The application of aerobics is a required component for physical fitness training and evaluation. Running programs adapted to time and distance appear to best satisfy this requirement.

12. Physical training programs should be implemented by qualified school trained personnel who are knowledgeable of the effects of exercise and stress upon the body.

13. Motivation in training and evaluation is a major consideration for the commander. An incentive awards program that recognizes individual and unit excellence in physical training achievements must be implemented. It is also realized that the application of accepted leadership principles is also required for a productive program of physical fitness.

14. The contribution of sports to physical fitness cannot be over emphasized. Sports should be merged with all physical training activities scheduled during normal duty hours.

15. The physical fitness of all soldiers, regardless of age, must meet acceptable minimum standards for active duty personnel.

Section II

RESOLUTIONS

1. That the school and college programs of health and physical education be strengthened with particular attention being given to the development of a high level of fitness on the part of youth who may be called into the service of their country.

2. That a national research and documentation center is needed to serve as a national focal point for research on physical fitness.

3. That increased command emphasis is needed to improve implementation of the Army's physical training program in the unit training phase.

4. That greater emphasis should be placed on the intra-mural sports program to make it a more dynamic program and one which provides benefit for the maximum number of personnel rather than a select few.

5. That more stress should be placed on motivation for physical fitness to include such things as a physical fitness award similar to the Marksmanship Badge. Ribbons indicating personal achievement in physical fitness should also be considered.

6. That the concept for the Army Physical Fitness Evaluation appears sound and should fulfill the Army's need for physical fitness measurement. Physical fitness evaluation of male personnel over 40 years of age, however, should be on a mandatory basis with educational and medical safeguards provided to minimize risk factors.

7. That the Fort Benning "Run For Your Life" Program is based on sound aerobic principles and should be beneficial as an Army-wide program.

8. That an Army Physical Fitness Institute to train selected officers and enlisted men would contribute immeasurably to the Army Physical Fitness Program. Graduates would provide the commander with the necessary skills and expertise to properly implement approved programs.

9. That further research and study is required in certain areas. Each agency represented will do whatever it can to further develop areas which follow:

a. Varying means by which personnel can be motivated to attain and maintain good physical fitness.

b. The optimum scheduling frequency for physical fitness activities necessary for the maintenance of physical fitness.

c. The determination of the benefits of a physical exercise program for personnel over 40 years of age.

d. The physical fitness standards deemed necessary for various types of organization, i.e., what numerical or statistical standards are required for a rifle company?

APPENDIX I

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